$\dot{x}_1 = x_2$
$\dot{x}_2 = -\dot{x}_1 - \dot{x}_1^3 - \dot{x}_2$
Choose as a candidate for $V(\mathbf{x}) = \frac{1}{2}x_2^2$, with
$\dot{V} = x_2\dot{x}_2 = -x_1x_2 - x_1^3x_2 - x_2^2$

The first and second term of the right-hand side are indefinite. But we can integrate them directly, because they are the derivatives of $-\frac{1}{2}x_1^2$ and $-\frac{1}{4}x_1^4$

This leads to $\mathbf{\frac{d}{dt}\{\frac{1}{2}x_1^2 + \frac{1}{4}x_1^4 + \frac{1}{2}x_2^2\} = -x_2^2}$

So the Lyapunov function $\mathbf{V(x) = \frac{1}{2}x_1^2 + \frac{1}{4}x_1^4 + \frac{1}{2}x_2^2}$

is positive definite and $\mathbf{\frac{dV}{dt} = -x_2^2}$ is positive negative and thus the system is globally asymptotic stable.